

WHAT IS CLAIMED:

1. An isolated nucleic acid that comprises SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18.
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2. An isolated nucleic acid that comprises SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18, and that can selectively hybridize to DNA from a bacteria of the family *Enterobacteriaceae*.
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3. An isolated nucleic acid that comprises SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, or SEQ ID NO:10 and that can selectively hybridize to DNA from *Escherichia coli*.
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4. The isolated nucleic acid of claim 3 wherein the nucleic acid selectively hybridizes to DNA from *Escherichia coli* in the presence of DNA from at least one other bacterial species of the family *Enterobacteriaceae*.
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5. The isolated nucleic acid of claim 3 wherein the nucleic acid selectively hybridizes to DNA from *Escherichia coli* in the presence of DNA from *Klebsiella*, *Salmonella*, *Shigella* or *Yersinia*.
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6. An isolated nucleic acid that comprises SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, or SEQ ID NO:14 and that can selectively hybridize to DNA from *Salmonella typhimurium*.
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7. The isolated nucleic acid of claim 6 wherein the nucleic acid selectively hybridizes to DNA from *Salmonella typhymurium* in the presence of DNA from at least one other bacterial species of the family *Enterobacteriaceae*.
- 5 8. The isolated nucleic acid of claim 3 wherein the nucleic acid selectively hybridizes to DNA from *Salmonella typhymurium* in the presence of DNA from *Klebsiella* or *Escherichia*.
- 10 9. An isolated nucleic acid that comprises SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18 and that can selectively hybridize to DNA from *Klebsiella oxytoca*.
- 15 10. The isolated nucleic acid of claim 9 wherein the nucleic acid selectively hybridizes to DNA from *Klebsiella oxytoca* in the presence of DNA from at least one other bacterial species of the family *Enterobacteriaceae*.
- 20 11. The isolated nucleic acid of claim 9 wherein the nucleic acid selectively hybridizes to DNA from *Klebsiella oxytoca* in the presence of DNA from *Salmonella* or *Escherichia*.
- 25 12. A biosensor chip that comprises a nucleic acid comprising SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18.
- 30 13. A method of detecting the presence of enteric bacteria in a test sample that comprises contacting the test sample with a probe under stringent hybridizations conditions, and detecting hybridization between the probe and a nucleic acid in the test sample, wherein the probe comprises SEQ ID NO:2,

SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7,
SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID
NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16,
SEQ ID NO:17, or SEQ ID NO:18.

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14. The method of claim 13 wherein the enteric bacteria are of the family
Enterobacteriaceae.

15. The method of claim 13 that further comprises DNA amplification.

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16. The method of claim 15 wherein the DNA amplification is by polymerase
chain reaction.

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17. A method of detecting the presence of any species of enteric bacteria in a test
sample that comprises contacting the test sample with a probe under
stringent hybridizations conditions, and detecting hybridization between the
probe and a nucleic acid in the test sample, wherein the probe comprises
SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, or SEQ ID
NO:6.

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18. The method of claim 17 wherein the enteric bacteria are of the family
Enterobacteriaceae.

19. The method of claim 17 that further comprises DNA amplification.

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20. The method of claim 19 wherein the DNA amplification is by polymerase
chain reaction.

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21. A method of detecting the presence of *Escherichia* in a test sample that
comprises contacting the test sample with a probe under stringent

hybridizations conditions, and detecting hybridization between the probe and a nucleic acid in the test sample, wherein the probe comprises isolated nucleic acid that comprises SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, or SEQ ID NO:10.

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22. The method of claim 21 wherein the probe selectively hybridizes to DNA from *Escherichia coli* in the presence, of DNA from *Klebsiella*, *Salmonella*, *Shigella* or *Yersinia*.

23. The method of claim 21 that further comprises DNA amplification.

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24. The method of claim 23 wherein the DNA amplification is by polymerase chain reaction.

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25. A method of detecting the presence of *Salmonella* in a test sample that comprises contacting the test sample with a probe under stringent hybridizations conditions, and detecting hybridization between the probe and a nucleic acid in the test sample, wherein the probe comprises isolated nucleic acid that comprises SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, or SEQ ID NO:14.

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26. The method of claim 25 wherein the probe selectively hybridizes to DNA from *Salmonella typhimurium*. in the presence of DNA from *Klebsiella* or *Escherichia*.

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27. The method of claim 25 that further comprises DNA amplification.

28. The method of claim 27 wherein the DNA amplification is by polymerase chain reaction.

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29. A method of detecting the presence of *Klebsiella* in a test sample that

5 comprises contacting the test sample with a probe under stringent hybridizations conditions, and detecting hybridization between the probe and a nucleic acid in the test sample, wherein the probe comprises isolated nucleic acid that comprises SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18.

10 30. The method of claim 29 wherein the probe selectively hybridizes to DNA from *Klebsiella oxytoca* in the presence of DNA from *Salmonella* or *Escherichia*.

31. The method of claim 29 that further comprises DNA amplification.

32. The method of claim 31 wherein the DNA amplification is by polymerase chain reaction.

15 33. A method for detecting enteric bacteria in a test sample that comprises contacting a test sample with a biosensor chip that comprises a solid support and an antibody that can bind to dGTPase from *Enterobacteriaceae*; and detecting whether dGTPase is bound to the biosensor chip; wherein the antibody is directed against a peptide having SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, or SEQ ID NO:36.

25 34. An isolated antibody that can selectively bind to dGTPase from *Enterobacteriaceae* wherein the antibody is directed against a polypeptide having SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, or SEQ ID NO:36.

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35. A method for detecting *Enterobacteriaceae* in a test sample that comprises contacting the isolated antibody of claim 34 with the test sample for a time and under conditions sufficient for the antibody to bind to a dGTPase polypeptide so as to form a binary complex between at least a portion of the antibody and a portion of the dGTPase polypeptide and detecting the binary complex.
36. A method of isolating a dGTPase polypeptide from *Enterobacteriaceae* comprising contacting a sample that may contain a dGTPase from *Enterobacteriaceae* with the antibody of claim 34 that is attached to a solid support, washing the solid support and eluting a dGTPase polypeptide from *Enterobacteriaceae*.
37. A biosensor chip that comprises a solid support and an antibody that can selectively bind to dGTPase from *Enterobacteriaceae*.
38. The biosensor chip of claim 36 wherein the antibody is directed against a polypeptide having SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22, SEQ ID NO:23, SEQ ID NO:24, SEQ ID NO:25, SEQ ID NO:26, SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, or SEQ ID NO:36.
39. A biosensor chip that comprises a solid support and a nucleic acid probe that can selectively hybridize to nucleic acid encoding a dGTPase from *Enterobacteriaceae*.
40. The biosensor chip of claim 38 wherein the probe is a nucleic acid comprising SEQ ID NO:2, SEQ ID NO:3, SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, or SEQ ID NO:18.